COLORADO FACILITY SPECIFIC HEALTH CARE-ACQUIRED INFECTION DATA - SURGICAL SITE INFECTION OVERVIEW

Surgical site infections (SSI) are infections directly related to a surgical procedure. It is estimated that more than 20 percent of HAI are attributed to SSI, equating to infections in approximately two percent of all surgical procedures nationally.⁵ The impact from an SSI can be devastating, often leading to a longer hospital stay, additional treatment and higher costs.⁶ The economic toll per patient occurrence is estimated to be between \$3,000 and \$25,500 depending on the procedure and pathogen(s) involved.^{1,7} Overall in the United States, SSI can cost consumers and health care payers from 3 to 10 billion dollars each year.¹

Surgical procedures required for SSI reporting are selected because they are (1) performed at a high volume, (2) performed at a variety of facilities, and (3) associated with a high risk for SSI. The surgeries monitored for SSI in Colorado include cardiac procedures, hip and knee replacements, hernia repairs, hysterectomies (abdominal and vaginal), and breast and colon procedures. The NHSN manual defines reportable procedures for surveillance as those that occur in a single trip to an operating room where the incision is closed following the procedure. Surgeries are performed as either inpatient or outpatient procedures.

Reportable infections occur within 30 days of the procedure or within one year if an implant was placed during the procedure. Common signs of infection include fever, pain or tenderness, drainage from the incision site, redness, or presence of an abscess. In NHSN, SSI are classified into three different categories based on the location of the infection.

- Superficial incision infection, which involves only the top layers of the skin.
- Deep incision, which involves deeper soft tissues (e.g., fascia and muscle layers).
- Organ space, which involves any part of the body that is opened or manipulated during the surgical procedure, excluding the top layers of skin, fascia or muscle layers.

Every table presenting SSI data below lists each facility in Colorado that performed the designated procedure, its city, the number of procedures performed, number of infections, standardized infection ratio (SIR) and a comparison to national infection data. For a detailed explanation of how the SIR is calculated, see Appendix B. There are three categories that indicate how a facility's own infection rate compares to the national infection rate. These are:

- 1. Statistically fewer (better) infections than expected based on national infection rates;
- 2. Statistically similar (same) infections as expected based on the national infection rates; or
- 3. Statistically more (worse) infections than expected based on national infection rates.

ABDOMINAL PROCEDURES

BACKGROUND

The surgeries presented in this section are hernia repairs, colon surgeries and hysterectomies (abdominal and vaginal). These surgeries can be performed as inpatient or outpatient procedures.

A hernia procedure involves the repair of a hernia or bulging of internal organs or tissues that protrude through an abnormal opening in the muscle wall. Reportable NHSN hernia procedures include inguinal, femoral, umbilical or anterior abdominal wall repairs.

In Colorado, hernia repairs were removed from mandatory reporting in acute care hospitals based on new national reporting requirements by the Centers for Medicare and Medicaid Services (CMS). To fulfill CMS reimbursement requirements, facilities nationwide began reporting certain colon procedures on Jan. 1, 2012.

Since facilities already were reporting colon surgeries to fulfill CMS requirements, Colorado removed the mandatory reporting of hernia repairs in hospitals, replacing it with colon surgeries. Hernia repair remains a reportable surgery for ASC and colon procedures only are reportable for hospitals.

Colon surgeries involve the excision of abnormal tissue in the small and large intestines. The intestines, which are muscular tubes that extend from the end of the stomach to the rectum, carry food, products of digestion and bacteria that help break down food in the digestive process. Since the intestines house bacteria, colon surgeries have a high risk for contamination and infection.

Hysterectomies are reported both by hospitals and ASC and involve the surgical removal of the uterus and occasionally, one or both fallopian tubes and/or ovaries. Indications for hysterectomy typically include benign fibroid tumors, cancerous tumors, uterine prolapse (uterus slips down into the vagina), endometriosis (cells from the uterine lining grow outside the uterus, causing pain and bleeding) and chronic pelvic pain.

Procedures counts, SSI counts and SSI rates for hernia repairs, colon surgeries and hysterectomies are presented in Tables 11-14 below.

HERNIA REPAIR

Hernia procedures involve the repair of bulging internal organs or tissues that protrude through an abnormal opening in the muscle wall. Reportable NHSN hernia procedures include inguinal, femoral, umbilical or anterior abdominal wall repairs. Since January 2012, hospitals no longer are required to report hernia repairs; therefore, hernia repairs are only

reported for ambulatory surgery centers (ASC).

RESULTS

Table 11 shows facility specific data for SSI attributed to **hernia repairs** performed in ASC from Aug. 1, 2012 through July 31, 2013, along with historical data for two previous reporting years.

Individually, all ASC had hernia SSI rates similar to the national average. When examining all ASC combined, the state aggregate had a better hernia SSI rate than the national average all three reporting years.

Thirty-four ASC reported 5,564 hernia repairs this past year; 20 ASC reported zero SSI. Individually, all ASC had hernia SSI rates similar to the national average. However, when examining all ASC combined (see Table 5), the statewide hernia SSI rate has been better than the national average all three reporting years.

TABLE 11: Hernia Repairs in Ambulatory Surgery Centers (ASC), Aug. 1, 2010 – July 31, 2013

	s	urgical Site Inf	ections in H	ernia R	epairs in Ambula	atory Surgery (Centers (ASC):	Aug. 1, 2	010 – July 31, 2	013			
Health Facility and City		August 2010- July 2011					August 2011-	2	August 2012- July 2013				
		Procedure Count	Infectio n Count	SIR	National Comparison	Procedure Count	Infection Count	SIR	National Compariso n	Procedure Count	Infection Count	SIR	National Comparison
ASC Durango at Mercy MC	Durango	152	0	0	Same	146	0	0	Same	91	0	0	Same
Aberdeen Ambulatory	Pueblo	2	***	***	***	3	***	***	***	4	***	***	***
Surgical Center													
Arkansas Valley Surgery Center	Canon City	84	0	0	Same	82	0	0	Same	90	0	0	Same
Audubon Ambulatory	Colorado	18	***	***	***	37	1	5.9	Same	18	***	***	***
Surgery Center	Springs		_		_		_		_		_	_	
Audubon Ambulatory	Colorado	522	3	1.2	Same	560	3	1.1	Same	468	0	0	Same
Surgery Center at St. Francis	Springs	26	0	-	C	0	***	***	***		***	***	***
Aurora Surgery Center	Aurora	26	0	0	Same	0				0			
Black Canyon Surgical Center	Montrose	36	0	0	Same	39	0	0	Same	37	0	0	Same
Boulder MC	Boulder	68	0	0	Same	74	0	0	Same	0	***	***	***
Centrum Surgical Center	Greenwood Village	9	***	***	***	7	***	***	***	13	***	***	***
Children's North Surgery Center	Broomfield	51	0	0	Same	56	0	0	Same	73	0	0	Same
Clear Creek Surgery Center	Wheat Ridge	383	1	0.6	Same	385	2	1.1	Same	366	0	0	Same
Colorado Springs Surgery Center	Colorado Springs	1	***	***	***	1	***	***	***	0	***	***	***
Crown Point Surgery Center	Parker	310	1	0.7	Same	244	0	0	Same	308	0	0	Same
Denver Midtown Surgery Center	Denver	225	0	0	Same	273	0	0	Same	175	0	0	Same
First Choice Outpatient Surgery Center at Community Hospital	Grand Junction	121	1	1.7	Same	83	1	2.5	Same	78	1	2.8	Same
Grand Valley Surgical Center	Grand Junction	221	1	0.9	Same	213	1	0.9	Same	182	0	0	Same
Harmony Ambulatory Surgery Center	Ft Collins	490	1	0.4	Same	534	4	1.5	Same	486	2	0.9	Same
Kaiser Permanente Ambulatory Surgery Center	Denver	770	5	1.3	Same	681	1	0.3	Same	676	5	1.5	Same
Lincoln Surgery Center	Parker	73	0	0	Same	55	0	0	Same	55	0	0	Same
Longmont Surgery Center	Longmont	166	0	0	Same	152	0	0	Same	126	0	0	Same
MCR Surgery Center	Loveland	1	***	***	***	0	***	***	***	0	***	***	***
Midvalley Ambulatory Surgery Center LLC	Basalt	3	***	***	***	6	***	***	***	4	***	***	***
Minimally Invasive Spinal Institute	Lafayette	1	***	***	***	0	***	***	***	0	***	***	***
North Suburban Surgery	Thornton	108	0	0	Same	178	0	0	Same	192	0	0	Same

Surgical Site Infections in Hernia Repairs in Ambulatory Surgery Centers (ASC): Aug. 1, 2010 – July 31, 2013													
Health Facility and City		August 2010- July 2011					August 2011-	2	August 2012- July 2013				
		Procedure Count	Infectio n Count	SIR	National Comparison	Procedure Count	Infection Count	SIR	National Compariso n	Procedure Count	Infection Count	SIR	National Comparison
Center													
Parkwest Surgery Center	Pueblo	10	***	***	***	9	***	***	***	9	***	***	***
Peak One Surgery Center	Frisco	41	0	0	Same	71	2	6.1	Same	60	0	0	Same
Pueblo Surgery Center	Pueblo	14	***	***	***	18	***	***	***	7	***	***	***
Red Rocks Surgery Center	Golden	Not yet operating				115	0	0	Same	253	0	0	Same
Renewal Surgery Center	Lone Tree	7	***	***	***	1	***	***	***	3	***	***	***
Rocky Mountain Surgery Center	Englewood	371	1	0.6	Same	353	0	0	Same	278	0	0	Same
Rose Surgical Center	Denver	459	0	0	Same	417	0	0	Same	399	0	0	Same
Sky Ridge Surgical Center	Lone Tree	239	0	0	Same	221	0	0	Same	328	0	0	Same
Skyline Surgery Center	Loveland	142	0	0	Same	179	0	0	Same	128	0	0	Same
Southwest Colorado Surgical Center	Cortez	0	***	***	***	13	***	***	***	12	***	***	***
Summit View Surgery Center	Littleton	286	0	0	Same	321	0	0	Same	342	0	0	Same
Surgery Center At Lutheran	Wheat Ridge	130	0	0	Same	58	0	0	Same	5	***	***	***
Surgery Center At Printers Park	Colorado Springs	28	0	0	Same	15	***	***	***	132	1	1.6	Same
Surgery Center Of Ft Collins	Ft Collins	8	***	***	***	15	***	***	***	13	***	***	***
Surgical Center at Premier	Colorado Springs	63	0	0	Same	66	0	0	Same	83	0	0	Same

 $Note: MC=Medical\ Center;\ SIR=Standardized\ Infection\ Ratio,\ the\ ratio\ of\ observed\ to\ expected\ infections\ adjusted\ for\ procedure\ risk\ factors.$

Infections for facilities performing less than 20 procedures per year are suppressed to protect confidential health information. These facilities fulfilled reporting requirements. Source: National Health Care Safety Network (NHSN) Database.

National comparison based on the indirect adjustment of modeled risk factors for each procedure type.

*** Indicates value not shown due to suppression of infection data, no national or historical rate available, or an expected infection count of zero.